



# HANKISON



HEDS SERIES

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REFRIGERATED/

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DESICCANT

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DRYING SYSTEMS

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# The low operating cost option

Designed for high capacity compressed air systems (1000 to 15,000 scfm, 28 to 425 m<sup>3</sup>/min) where low (-40°F/C) dew point temperatures are required

The combination of a refrigerated and desiccant dryer into an integrated system greatly reduces operating costs when compared to stand-alone desiccant dryers...offering a rapid payback on your equipment investment

## Advantages Energy Savings

- Power costs are reduced by allowing an inexpensively operated refrigerated dryer to do 7/8ths of the work. Because the desiccant dryer sees cooler, drier inlet air, bed size and the energy required for bed regeneration are minimized.
- Even more savings are possible when operating at higher temperatures or lower pressures where moisture loads are greatest

- Desiccant dryer can be by-passed during warmer periods for further savings
- Refrigerated dryer incorporates a refrigeration by-pass valve and, on larger units, refrigeration compressor unloaders
- Desiccant dryer includes energy saver temperature sensing - shuts heater off when desiccant bed is regenerated... and fully insulated towers, heater and



Two component system allows use of existing space.

purge piping to prevent heat losses

- Designed for low pressure drop through the system

## Performance

- Consistent outlet temperature and dew points - complete cooling after regeneration eliminates spikes after switchover
- Performance cushion - when ambient dew point is lower than design condition, the outlet pressure dew point is also lower
- On units supplied with oil removal filter, the filter is mounted at the coldest point - increasing its effectiveness



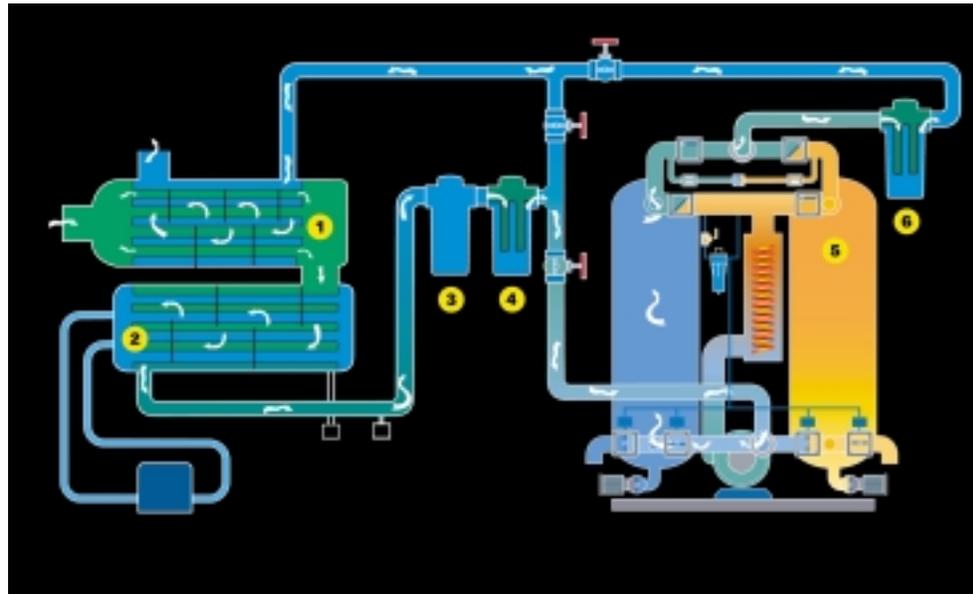
Three 9000 scfm (255m<sup>3</sup>/min) Hankison HEDS Series Drying Systems furnish clean, dry air to a major automobile assembly plant.

### Maintenance savings

- Low regeneration temperatures and long cycle times mean long desiccant life - service life of 3 to 5 years is typical
- Since the bed size is typically a third the size of a stand-alone desiccant dryer, desiccant replacement costs are minimized
- Long cycle time reduces valve wear
- If desiccant dryer is by-passed during warm weather, routine maintenance can be performed without interrupting air supply

### Space saving

- Larger HEDS drying systems are furnished as two self-contained, skid mounted assemblies: a refrigerated dryer and oil removal filter (if supplied) on one skid and the blower purge desiccant dryer and afterfilter on the other.
- Two smaller components often allow better space utilization than a single large unit.
- Components can be separated (e.g. one component on the floor, the other on a mezzanine)
- Skids are fully assembled; included is a 3 valve by-pass to allow operation of refrigerated dryer only



### Operation:

- Compressed air, saturated with water vapor, enters the refrigerated dryer air-to-air heat exchanger (precooler/reheater) (1) where it is precooled by the cold outgoing air. A large heat exchanger allows one-half the heat load to be removed, minimizing the size and energy requirements of the refrigeration system.
- The air stream then enters the air-to-refrigerant heat exchanger (2) where it is further cooled by the refrigeration system. A reliable refrigerant control system keeps the cooling temperature consistent throughout a wide range of operating conditions.
- A moisture separator (3) then removes the liquid that condensed as the air was cooled. Automatic condensate drains collect and discharge condensate from the system.
- The air then flows to a high efficiency coalescing oil removal filter (4) (optional). This filter is utilized on systems supplied by lubricated compressors to eliminate oil aerosols and protect the desiccant bed from contamination. Filtering out the oil at the coldest point in the system maximizes the amount of oil removed and allows outlet oil concentrations to equal those produced by activated carbon adsorption filters.
- Next the air enters the blower purge type desiccant dryer (5) where water vapor is adsorbed onto a bed of activated alumina and the design dew point is achieved. A long purge cycle allows the tower being regenerated to completely cool to the temperature at the inlet to the desiccant dryer before going back on-line.
- After exiting the desiccant dryer, the air is filtered through a one micron filter (6) to remove desiccant fines
- The air is then routed back through the refrigerated dryer air-to-air heat exchanger. The compressed air leaves the system clean, dry and ready to supply your compressed air needs.

## Does a Hankison HEDS Series Drying System Make Sense For You?

### Compare the Difference

Flow rate:

5800 scfm (164 m<sup>3</sup>/min) with compressed air at the inlet of the dryer at 100 psig (7.0 kgf/cm<sup>2</sup>) and 100°F (38°C) saturated

Outlet pressure dew point: -40°F (-40°C)

1. Power cost - (based on 8736 hours/year operation and \$0.06/kW-hr)
  - Stand-alone blower purge regenerative desiccant dryer: **\$48,750.00** (U.S. dollars)
  - HEDS Drying System: **\$33,020.00** (U.S. dollars)
2. Desiccant replacement costs (annualized; based on 2 year bed life for the blower purge dryer and 3 year bed life for the drying system)
  - Stand-alone blower purge regenerative desiccant dryer: **\$7,100.00** (U.S. dollars)
  - HEDS Drying System: **\$2,180.00** (U.S. dollars)

Total annual savings of operating a HEDS Refrigerated/Desiccant Drying System vs. a stand-alone blower purge desiccant dryer...

- When operating complete system (refrigerated and desiccant dryer) 12 months: **\$20,650.00** (U.S. dollars)
- Additional savings available if HEDS Drying System operates as a refrigerated dryer only (38°F, 3°C outlet pressure dew point) for 5 months of the year: **\$8,300.00** (U.S. dollars) (power savings only; doesn't include additional savings from extended bed life)
- Total annual savings when operating complete system 7 months and refrigerated dryer only for 5 months: **\$28,950.00** (U.S. dollars)

Let us do an operating cost comparison based on your conditions... see for yourself if the rapid payback HEDS Drying Systems offer makes sense for you:

1. Dryer flow capacity: (specify air compressor output or downstream air requirements) . . . . . \_\_\_\_\_
2. Outlet pressure dew point required: (specify for year or by season [e.g. -40°F, -40°C for 7 months; 38°F, 3°C for 5 months]) . . \_\_\_\_\_
3. Compressed air temperature at inlet of dryer: . . . . . \_\_\_\_\_
4. Compressed air pressure at inlet of dryer: . . . . . \_\_\_\_\_
5. Geographic location: . . . . . \_\_\_\_\_
6. Period of operation: (hours/day, days/week, weeks/year) . \_\_\_\_\_
7. Cost of power: . . . . . \_\_\_\_\_



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